

**Supplemental Material**  
**Impaired Lipid and Glucose Homeostasis in  
Hexabromocyclododecane-Exposed Mice Fed a High-Fat  
Diet**

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**Supplemental Material, Table S1.** The composition of normal-diet and high-fat diet.

	<b>AIN-93M (g/100 g)</b>	<b>HFD-60 (g/100 g)</b>
Milk casein	14.00	25.60
L-cysteine	0.18	0.36
Corn starch	46.57	-
$\alpha$ -Corn starch	15.50	16.00
Maltodextrin	-	6.00
Sucrose	10.00	5.50
Soybean oil	4.00	2.00
Powdered cellulose	5.00	6.61
AIN-93M mineral mixture	3.50	3.50
AIN-93M vitamin mixture	1.00	1.00
Choline bitartrate	0.25	0.25
Calcium carbonate	-	0.18
Lard	-	33.00
<i>tert</i> -butylhydroquinone	0.0008	-
Total calorie (kcal/100g)	360.5	506.2

**Supplemental Material, Table S2.** Gene list for RT-PCR analysis.

<b>Category</b>	<b>Gene symbol</b>	<b>Gene name</b>	<b>Assay ID</b>
Transcription factor	<i>Ppara</i>	peroxisome proliferator activated receptor alpha	Mm00440939_m1
Transcription factor	<i>Pparg</i>	peroxisome proliferator activated receptor beta	Mm01184322_m1
Transcription factor	<i>LXR</i>	liver X receptor	Mm00443451_m1
Transcription factor	<i>Rxra</i>	retinoid X receptor alpha	Mm00441182_m1
Transcription factor	<i>Srebp1</i>	sterol regulatory element binding transcription protein 1	Mm00550338_m1
Lipid transport	<i>Cd36</i>	CD36 antigen	Mm01135198_m1
Lipid transport	<i>Fabp4</i>	fatty acid binding protein 4	Mm00445878_m1
Lipid transport	<i>Fsp27</i>	fat-specific protein 27	Mm00617672_m1
Lipogenesis	<i>Fasn</i>	fatty acid synthase	Mm00662319_m1
Macrophage marker	<i>F4/80</i>	F4/80	Mm00802529_m1
Macrophage marker	<i>Cd11c</i>	integrin alpha X	Mm00498698_m1
Inflammation	<i>Il1b</i>	interleukin 1 beta	Mm00434228_m1
Inflammation	<i>Il6</i>	interleukin 6	Mm00446190_m1
Inflammation	<i>Tnfa</i>	tumor necrosis factor alpha	Mm00443260_g1
Inflammation	<i>Ccl2</i>	chemokine (C-C motif) ligand 2	Mm00441242_m1
Insulin signaling	<i>Insr</i>	insulin receptor	Mm01211875_m1
Insulin signaling	<i>Irs1</i>	insulin receptor substrate 1	Mm01278327_m1
Insulin signaling	<i>Pi3k</i>	phosphatidylinositol 3-kinase	Mm00803160_m1
Insulin signaling	<i>Akt1</i>	protein kinase B	Mm01331626_m1
Insulin signaling	<i>Glut4</i>	glucose transporter 4	Mm01245502_m1Gl

RT-PCR; reverse transcription polymerase chain reaction.

**Supplemental Material, Table S3.** Body and liver weight and biochemical test in the serum at 20 weeks of age.

Group	Body weight gain (g)	Liver weight (mg)	AST (IU/L)	ALT (IU/L)	T-Cho (mg/dL)	TG (mg/dL)
ND+Vehicle	8.94 ± 0.61	1261 ± 54.8	73.0 ± 8.86	13.6 ± 1.04	136 ± 8.39	86.1 ± 9.88
ND+L-HBCD	9.07 ± 0.70	1283 ± 36.8	74.2 ± 7.59	15.0 ± 1.18	147 ± 7.54	81.8 ± 4.72
ND+M-HBCD	8.53 ± 0.51	1159 ± 21.9	66.6 ± 6.57	14.2 ± 1.59	133 ± 6.53	93.6 ± 3.93
ND+H-HBCD	7.74 ± 1.13	1165 ± 49.4	46.0 ± 7.96*	10.5 ± 0.22	116 ± 10.6	89.8 ± 13.1
HFD+Vehicle	15.8 ± 1.50**	1405 ± 96.4**	79.7 ± 7.44	34.5 ± 8.43	202 ± 5.89**	90.5 ± 9.59
HFD+L-HBCD	17.7 ± 1.83**	1622 ± 164**	78.7 ± 8.58	43.0 ± 15.0	200 ± 7.29**	87.7 ± 6.37
HFD+M-HBCD	20.8 ± 0.97**,#	1662 ± 87.9**,#	101 ± 8.39*	60.0 ± 12.2**	220 ± 5.07**	96.2 ± 10.4
HFD+H-HBCD	21.3 ± 1.31**,#	1790 ± 153**,#	85.2 ± 7.50	61.5 ± 10.2**	212 ± 1.95**	98.3 ± 8.11

Serum levels of aspartate aminotransferase (AST), alanine aminotransferase (ALT), total cholesterol (T-Cho), triglyceride (TG), and glucose 24 hr after the final HBCD administration were measured by SPOTCHEM EZ SP-4430 (ARKRAY, Inc., Kyoto, Japan). ALT; alanine aminotransferase, AST; aspartate aminotransferase, T-Cho; total cholesterol, TG; triglyceride. Data are the mean ± SE of 5-6 animals per group. Data were analyzed ANOVA followed by Dunnett's test or Kruskal-Wallis followed by Steel's test. \* $P < 0.05$  vs. ND+Vehicle group, \*\* $P < 0.01$  vs. ND+Vehicle group, # $P < 0.05$  vs. HFD+Vehicle group, ## $P < 0.01$  vs. HFD+Vehicle group.

Supplemental Material, Figure S1.

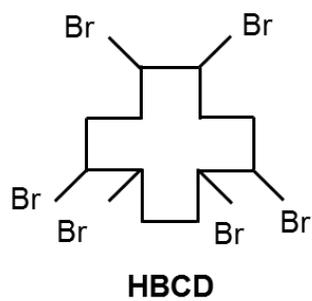


Figure S1. Chemical structure of hexabromocyclododecane (HBCD)

Supplemental Material, Figure S2

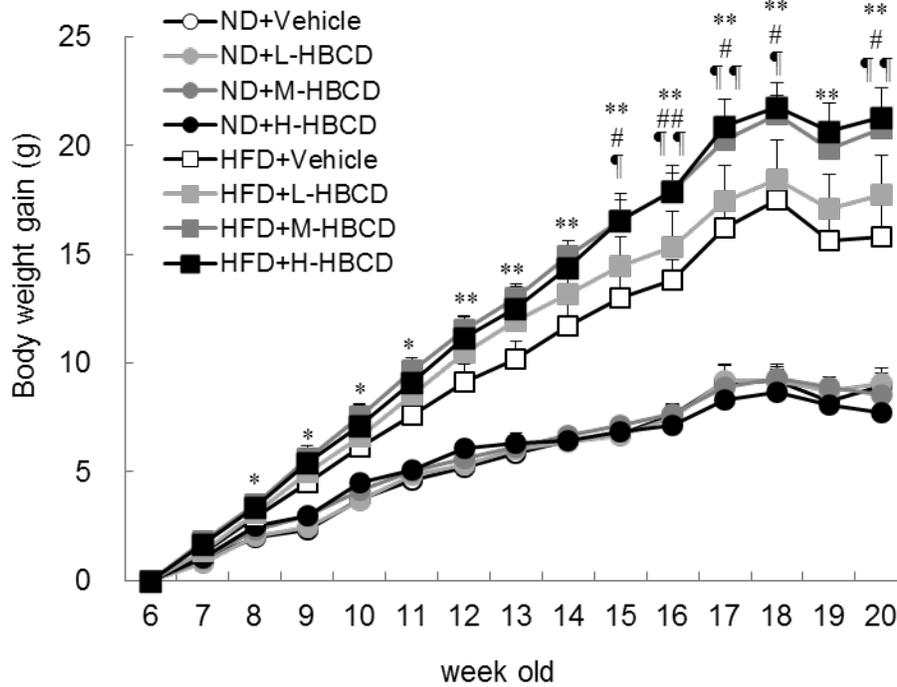


Figure S2. Effects of HBCD exposure on body weight gain in the ND- or HFD-fed mice.

Data are the mean  $\pm$  SE of 5-6 animals per group. Data were analyzed ANOVA followed by Dunnett's test or Kruskal-Wallis followed by Steel's test.

The results for ND + Vehicle group were not visible in the figure because of overlap with other data points.

\*,  $P < 0.05$  vs. ND+Vehicle group, \*\*  $P < 0.01$  vs.

ND+Vehicle group, #  $P < 0.05$  HFD+M-HBCD group vs.

HFD+Vehicle group, ##  $P < 0.01$  HFD+M-HBCD group vs.

HFD+Vehicle group, ¶  $P < 0.05$  HFD+H-HBCD group vs.

HFD+Vehicle group, ¶¶  $P < 0.01$  HFD+H-HBCD group vs.

HFD+Vehicle group.